AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method of manipulating charged particles of a beam of charged particles by a magnetic field, the method comprising:

operating a magnetic field generating apparatus having a magnetic-flux-carrying body made of a material with a high permeability number, and at least one current conductor located adjacent to the magnetic-flux-carrying body, and

operating the magnetic-flux-carrying body at an operating temperature,

wherein the permeability number of the material is temperature dependent, and the material and the operating temperature are chosen such that the operating temperature is within a temperature range, in which the following applies:

$$\frac{\mu_{max} - \mu_{min}}{\mu_{max} \cdot \Delta T} = c \text{, with } c < \cancel{3 \cdot 10^{-4}\, K^{-1}}\ \underline{3 \cdot 10^{-5}\, K^{-1}}$$

wherein

μ_{max} is a maximum value of the permeability number in the temperature range,

μ_{min} is a minimum value of the permeability number in the temperature range, and

ΔT is a width of the temperature range.

2. Cancelled

3. Cancelled

4. Cancelled

5. Cancelled

6. (Original) The method according to claim 1, wherein c is less than $9 \cdot 10^{-6}\ K^{-1}$.

7. (Original) The method according to claim 1, wherein c is less than $3 \cdot 10^{-6}\ K^{-1}$.

8. (Original) The method according to claim 1, wherein c is less than $1 \cdot 10^{-6}\ K^{-1}$.

9. Cancelled

10. (Currently Amended) ~~The method according to claim 9,~~ A method of manipulating charged particles of a beam of charged particles by a magnetic field, the method comprising:

operating a magnetic field generating apparatus having a magnetic-flux-carrying body made of a material with a high permeability number, and at least one current conductor located adjacent to the magnetic-flux-carrying body, and

operating the magnetic-flux-carrying body at an operating temperature,

wherein the permeability number of the material is temperature dependent, and the material and the operating temperature are chosen such that the

operating temperature is within a temperature range, in which the following applies:

$$\frac{\mu_{max} - \mu_{min}}{\mu_{max} \cdot \Delta T} = c\text{, with } c < 3 \cdot 10^{-4}\ K^{-1}$$

wherein

μ_{max} is a maximum value of the permeability number in the temperature range,

μ_{min} is a minimum value of the permeability number in the temperature range, and

ΔT is a width of the temperature range,

wherein a temperature dependency of the permeability number of the material has an extremum in the temperature range, and

wherein the operating temperature is substantially a temperature at which the temperature dependency has the extremum.

11. (Original) The method according to claim 1, wherein the permeability number of the material is higher than 5,000.

12. (Original) The method according to claim 1, wherein the permeability number of the material is higher than 8,000.

13. (Original) The method according to claim 1, wherein the permeability number of the material is higher than 10,000.

14. (Currently Amended) A particle optical system having a particle-optical apparatus for providing a magnetic field for manipulating charged particles of a beam of charged particles, the particle-optical apparatus comprising:

a magnetic-flux-carrying body made of a material with a high permeability number,

at least one current conductor located adjacent to the magnetic-flux-carrying body, and

a temperature-adjusting unit configured for adjusting a temperature of the magnetic-flux-carrying body substantially to a nominal temperature,

wherein the permeability number of the material is temperature-dependent and the nominal temperature is within a temperature range, in which the following applies:

$$\frac{\mu_{max} - \mu_{min}}{\mu_{max} \cdot \Delta T} = c\text{, with } c < \cancel{3 \cdot 10^{-4}\,K^{-1}}\ \underline{3 \cdot 10^{-5}\,K^{-1}}$$

wherein

μ_{max} is a maximum value of the permeability number in the temperature range,

μ_{min} is a minimum value of the permeability number in the temperature range, and

ΔT is a width of the temperature range.

15. Cancelled

16. (Currently Amended) ~~The particle-optical system according to claim 15,~~ A particle optical system having a particle-optical apparatus for providing a magnetic field for manipulating charged particles of a beam of charged particles, the particle-optical apparatus comprising:

a magnetic-flux-carrying body made of a material with a high permeability number,

at least one current conductor located adjacent to the magnetic-flux-carrying body, and

a temperature-adjusting unit configured for adjusting a temperature of the magnetic-flux-carrying body substantially to a nominal temperature,

wherein the permeability number of the material is temperature-dependent and the nominal temperature is within a temperature range, in which the following applies:

$$\frac{\mu_{max} - \mu_{min}}{\mu_{max} \cdot \Delta T} = c \text{, with } c < 3 \cdot 10^{-4}\ K^{-1}$$

wherein

μ_{max} is a maximum value of the permeability number in the temperature range,

μ_{min} is a minimum value of the permeability number in the temperature range, and

ΔT is a width of the temperature range,

wherein a temperature dependency of the permeability number of the material exhibits an extremum in the temperature range, and

wherein the nominal temperature is substantially a temperature at which the temperature dependency exhibits the extremum.

17. (Original) The particle-optical system according to claim 14, wherein the temperature-adjusting unit comprises a temperature sensor for detecting the temperature of the magnetic-flux-carrying body.

18. (Original) The particle-optical system according to claim 14, wherein the material is a soft-magnetic material.

19. (Original) The particle-optical system according to claim 14, wherein the material is a ferrite material.

20. (Original) The particle-optical system according to claim 14, wherein the system is a lithography system for transferring a pattern onto a particle-sensitive substrate using at least one writing beam of charged particles.

21. (Original) The particle-optical system according to claim 14, wherein the system is a microscopy system for inspecting an object.

22. (Currently Amended) A method of making a system for manipulating charged particles of a beam of charged particles by a magnetic field, the method comprising:

providing a magnetic field generating apparatus having a magnetic-flux-carrying body made of a material with a high permeability number and having at least one current conductor located adjacent to the magnetic-flux-carrying body, the permeability number of the material being temperature dependent, and

choosing the material and an operating temperature for the magnetic-flux-carrying body such that the operating temperature is within a temperature range, in which the following applies:

$$\frac{\mu_{max} - \mu_{min}}{\mu_{max} \cdot \Delta T} = c \text{, with } c < \cancel{3 \cdot 10^{-4}\,K^{-1}}\ \underline{3 \cdot 10^{-5}\,K^{-1}}$$

wherein

μ_{max} is a maximum value of the permeability number in the temperature range,

μ_{min} is a minimum value of the permeability number in the temperature range, and

ΔT is a width of the temperature range.

23. Canceled

24. Canceled

25. (Previously Presented) The method according to claim 22, wherein c is less than $9 \cdot 10^{-6}\,K^{-1}$.

26. (Previously Presented) The method according to claim 22, wherein c is less than $3 \cdot 10^{-6}\,K^{-1}$.

27. (Previously Presented) The method according to claim 22, wherein c is less than $1 \cdot 10^{-6}\,K^{-1}$.

28. Canceled

29. (Currently Amended) ~~The method according to claim 28,~~ A method of making a system for manipulating charged particles of a beam of charged particles by a magnetic field, the method comprising:

providing a magnetic field generating apparatus having a magnetic-flux-carrying body made of a material with a high permeability number and having at least one current conductor located adjacent to the magnetic-flux-carrying body, the permeability number of the material being temperature dependent, and

choosing the material and an operating temperature for the magnetic-flux-carrying body such that the operating temperature is within a temperature range, in which the following applies:

$$\frac{\mu_{max} - \mu_{min}}{\mu_{max} \cdot \Delta T} = c \text{, with } c < 3 \cdot 10^{-4}\ K^{-1}$$

wherein

μ_{max} is a maximum value of the permeability number in the temperature range,

μ_{min} is a minimum value of the permeability number in the temperature range, and

ΔT is a width of the temperature range,

wherein a temperature dependency of the permeability number of the material has an extremum in the temperature range, and

wherein the operating temperature is substantially a temperature at which the temperature dependency has the extremum.

30. (Previously Presented) The method according to claim 22, wherein the permeability number of the material is higher than 8,000.

31. (Previously Presented) The method according to claim 22, wherein the permeability number of the material is higher than 10,000.